

Appendix S



2 System Description

2.1 Design Criteria

The Z-MOD™-S MBR system proposed for this project is designed to treat an average daily flow (ADF) of 0.025 MGD. The system can support a Maximum Daily Flow (MDF) of 0.050 MGD for periods generally not exceeding 24 continuous hours. Any flow conditions greater than the above-noted flow limits must be equalized prior to treatment in the membrane bioreactor unit.

The following table summarizes the main design parameters on which the Z-MOD™-S MBR system has been designed. The column titled “influent” is typical of medium strength sanitary wastewater—to be approved by the client. The column titled “effluent” is the anticipated treated water quality that the Z-MOD™-S can achieve based on current ZENON design.

Table 1: Design Parameters

Parameter	Influent	Effluent	Units
Average Daily Flow Rate	0.025	0.025	MGD
Max Daily Flow Rate ⁽¹⁾	0.050	0.050	MGD
Design Water Temperature	15 °C*	15 °C	°C
BOD ₅	300	<5	mg/L
TSS	300	<5	mg/L
Alkalinity ⁽²⁾	250*	n.a.	mg/L
Turbidity	n.a.	< 1	NTU
TP	n.a.	n.a.	mg/L
TKN	60	<10	mg/L
NH ₄ -N	35	<1	mg/L
E-coli ⁽³⁾	n.a.	< 2.2	cfu/100 ml

*Assumed

Note⁽¹⁾: Maximum daily flow can generally be maintained for periods not exceeding 24 consecutive hours. However, the average flow for any given month shall not exceed the specified ADF. If the average monthly flow exceeds the ADF design for this system, please notify GE ZENON and the system design and pricing will be modified accordingly.

Note⁽²⁾: ZENON is assuming that sufficient influent alkalinity is available to ensure proper performance of the biological system. If influent alkalinity level is not sufficient, chemical addition will be required.

Note⁽³⁾: With the use of UV or Ozone post disinfection.

2.2 Standard ZENON-Supplied Equipment

The Z-MOD™-S MBR is a fully integrated system designed for rapid, plug-and-play installation. Biological processes, membranes, pumps, chemical dosing pumps and blowers are shipped and installed in a single compact unit.

2.2.1 Bioreactor

A single-train bioreactor is provided by ZENON. The bioreactor is a horizontal epoxy coated steel tank. The tank is divided into an anoxic zone, aerobic zone and filtration chamber.